

March 4, 2015

Director, Air Compliance Program  
U.S. EPA New England  
1 Congress Street (SEA)  
Suite 1100  
Boston, MA 02114-2023  
Attn: Air Compliance Clerk

**Re: The Mattabassett District Water Pollution Control Facility  
Subpart LLLL (40 CFR Part 60) – Request for EPA Approval of Alternative Monitoring  
for Granular Activated Carbon System and Fugitive Ash.**

To Whom It May Concern:

The Mattabassett District (MD) owns and operates The Mattabassett District Water Pollution Control Facility (MDWPCF) located at 245 Main Street, CT. Mattabassett District is currently constructing a new Infilco Degremont Inc. fluidized bed sewage sludge incinerator (SSI) at the facility, pursuant to Permit to Construct and Operate No. 043-0030 issued by the CT Department of Energy & Environmental Protection (CTDEEP). The new SSI will incinerate all processed sludge that is thickened and dewatered in other operations at the facility and is subject to 40 CFR Part 60, Subpart LLLL. A combination of controls will be used to comply with Subpart LLLL, including design of the fluidized bed incinerator, selective non-catalytic reduction, venturi/impingement tray scrubber, wet electrostatic precipitator (WESP), wet ash handling system and an activated carbon adsorption unit.

The Mattabassett District herein requests EPA's approval of the following alternative monitoring requirements with respect to 40 CFR Part 60, Subpart LLLL – Standards of Performance for New Sewage Sludge Incineration Units, outlined in the table below, followed by a more detailed description:



Operating Parameter Monitoring Requirement in Table 1 and 3 to Subpart LLLL	Proposed Alternative	Basis
Table 1: Fugitive Emissions from ash handling system	Use of wet ash handling system – eliminates fugitive emissions	The new FBI system uses a wet ash therefore monitoring for fugitive ash is not needed.
Table 3: Activated Carbon Injection: <ul style="list-style-type: none"> <li>Mercury sorbent injection rate</li> <li>Dioxin/furan sorbent injection rate</li> <li>Carrier gas flow rate or carrier gas pressure drop</li> </ul>	Fixed bed GAC system: <ul style="list-style-type: none"> <li>Delta Temperature across the Conditioner</li> <li>Delta Pressure across the Carbon Bed</li> <li>Available sulfur in the carbon.</li> </ul>	The new FBI system uses a fixed bed carbon adsorption system rather than a carbon injection system. Therefore, the monitoring the operating parameters for activated carbon injection do not apply to this system. the Mattabassett District proposes to monitor the following: differential temperature across conditioner, the pressure drop across the carbon bed, and the available sulfur in the carbon.

This petition is made pursuant to 40 CFR 60.13(i), which provides for the petitioning of the EPA Administrator for approval of alternatives to any monitoring procedures or requirements of Part 60. Both the fugitive emissions from ash handling and the carbon adsorptions systems are discussed below;

### ***Fugitive Emissions from Ash Handling***

The SSI under construction at the Mattabassett District has a wet ash collection system. Table 1 to Subpart LLLL and Section 60.4880 (d) requires the fluidized bed incinerator operator to submit a monitoring plan for ash handling systems to ensure that fugitive emissions limits are met. These regulations assume that the ash handling system is a dry ash system. The ash at Mattabassett is collected using a water quench, a wet scrubber and a Wet ESP system. The ash collected in this system is pumped as a slurry to two ash storage ponds. The ash settles in these two ponds and the clarified water is sent to the headworks of the plant. When the ponds are full of ash, the water is drained as much as possible from the ash and the remaining wet ash is trucked off-site for disposal. Since the ash handling system is entirely a wet system, the potential for air-born fugitive emissions does not exist. The Mattabassett District requests that this requirement be waved for the subject FBI system.

### ***The Granulated Activated Carbon Bed System Monitoring***

The SSI under construction at the Mattabassett District will have a fixed bed carbon system as part of its air pollution control system rather than an activated carbon injection system. Subpart LLLL does not address monitoring of a fixed carbon bed system for mercury removal. The granular activated carbon adsorption system includes a conditioner followed by a carbon vessel. The Mattabassett District proposes the following specific operating parameters be monitored:





1. **Monitor Pressure drop across the carbon bed:** The pressure drop across the carbon system is measured by PDIT-4993. Monitoring the pressure drop will help the operator to determine whether the carbon bed has a buildup of dust, moisture or precipitates. Normally an increase in pressure is very slow and gradual over time. An acceleration of the rate of increase in delta P across the Adsorber is an indication that the process may be operating outside the design parameter. The pressure drop will be recorded in the SCADA system.
2. **Monitor Temperature difference between the conditioner inlet and outlet:** The conditioner raises the temperature of the FBI exhaust which lowers the relative humidity of the exhaust prior to it entering the carbon adsorber vessel. The air to the conditioner comes from wet scrubber system/WESP and therefore is at 100% humidity. It is important to reduce the relative humidity of the FBI exhaust gas to the Carbon Adsorber to prevent water from condensing on the carbon and reducing its efficacy. A split stream of the plume suppression air is used as the heating medium in the conditioner vessel heat exchanger.

The differential temperature across the conditioner is monitored by temperature differential indicating controller TDIC-4281 which calculates the difference between temperature indicator TI-4292 (Adsorber inlet temperature) and temperature TI-4291 (the Conditioner Inlet Temperature). TDIC-4281 controls the heat input through the conditioner's heat exchanger. The differential temperature will be recorded in the SCADA system.

3. **Monitoring of the carbon for available sulfur:** The activated carbon used in the GAC vessel is impregnated with sulfur which reacts with mercury to HgS. The available sulfur indicates the mercury removal capacity of the carbon. There is a direct relationship between the available sulfur and the emission of mercury from the process. Under normal operation, the available sulfur sites on the activated carbon are exhausted by chemisorption with the mercury to form a tightly held HgS activated compound in the carbon. (indication of mercury removal capacity).

Sulfur content of the carbon can be monitored by collecting a sample of carbon from sample ports in the carbon bed. The carbon bed has three layers of material: one layer of dust protection inert material and two layers of adsorption carbon media. Each of the three layers of materials have four sample collection ports, two at the top and two at the bottom of the layer. The carbon bed has an expected life of more than 4 years before the carbon's mercury adsorption capacity is exhausted. The carbon samples shall be collected every six months. Initially they will be collected from the first layer of carbon. When that layer shows a minimum of 20% of the original sulfur capacity, then samples will be collected from the second layer of carbon. When the second layer reaches 20% of the original sulfur capacity, plans should be made to replace the carbon.

A specific EPA determination on similar requests for elimination of fugitive ash monitoring due to use of a wet ash handling system and proposed monitoring approaches relevant to a fixed carbon bed system for mercury control under Subpart LLLL was not located in a search of EPA's Applicability Determination Index. In fact, no applicability determinations were found in the database relevant to

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Subpart LLLL. Regardless, Mattabassett District believes that the alternative monitoring discussed above is justified with respect to the criteria referenced in § 60.13(i).

Assuming EPA approval of this request for alternative monitoring, the Mattabassett District understands that the approval will be subject to revision of the Mattabassett District's Title V permit and CTDEEP NSR permit incorporating the alternative monitoring plan and conditions of EPA's approval.

For the reasons set forth above, the Mattabassett District believes the requested alternative monitoring approaches subject to 40 CFR Part 60, Subpart LLLL are justified. the Mattabassett District respectfully requests that EPA approve the alternate monitoring procedures sought herein.

Should you have any questions, please contact me at (207) 798-3738.

Sincerely,

**WRIGHT - PIERCE**

A handwritten signature in blue ink, appearing to read "Melissa Hamkins".

Melissa Hamkins  
Senior Project Manager

Copies (via email):

Lakiesha Christopher, CTDEEP  
Keith Hill, CTDEEP  
Michelle Ryan, Mattabassett District